A STUDY TO ASSESS THE EFFECTIVENESS OF FOOT AND HAND MASSAGE IN REDUCING LEVEL OF POST OPERATIVE PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY AT SELECTED HOSPITAL, COIMBATORE

By

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A Dissertation submitted to **The Tamil Nadu Dr.M.G.R. Medical University**, Chennai, in partial fulfillment for the requirement of the degree of

Master of Science in Nursing

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CERTIFICATE

Certified that **A STUDY TO ASSESS THE EFFECTIVENESS OF FOOT AND HAND MASSAGE IN REDUCING LEVEL OF POST OPERATIVE PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY AT SELECTED HOSPITAL, COIMBATORE** is a bonafide work of **SONIYA. T,** PSG College of Nursing, Coimbatore, and submitted in partial fulfillment of requirement of the degree of Master of Science in Nursing to **The Tamil Nadu Dr. M.G.R Medical University**, Chennai.

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LIST OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ANNEXURES

ABSTRACT

A study to assess the effectiveness of Foot and Hand massage in reducing level of post operative pain among patients with abdominal surgery at selected Hospital, Coimbatore.

Background of the study: Pain is a universal experience that can span a vast spectrum of intensity, from mild distress to excruciating agony. Pain defined by the International Association for the study of pain (IASP) "as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage". Massage is the simple way of easing postoperative pain as well as aiding relaxation, promoting a feeling of well being and a sense of receiving good care. Massage is also thought to increase the threshold of pain through the release of endorphin. Massage is recognized as a safe treatment modality without risk or side effect.

Objective: The main objective of the study was to compare the level of postoperative pain among patients who have undergone abdominal surgery between before and after administration of foot and hand massage in experimental group and control group (routine therapy) as measured by numerical pain rating scale.

Methods: The research design adopted was time series design. A total of fifty abdominal surgery patients who met inclusion criteria were selected by using purposive sampling technique. Numerical pain rating scale was used to assess the level of post operative pain among abdominal surgery patients. Foot and Hand massage was administered 3 times a day for consecutive 3 days.

Result of the study: In intervention group, 24 (96%) patients had severe pain during pre test, and 25 (100%) patients had moderate pain on the posttest day one. On day two, 19 (76%) patients had mild pain and on day three, 23 (92%) had mild pain and 6 (24%) had moderate pain. In comparison group 25 (100%) patients had severe pain during pre test, on the posttest day one, 25 (100%) patients had severe pain. On day two, 21 (84%) had severe pain and 4 (16%) had moderate pain. On day three, 7 (28%) patients had severe pain and 18 (72%) had moderate pain. None of them experienced no pain even at the third day in both the groups.

The overall posttest mean and standard deviation of the intervention group is 3.2 ± 0.066. The calculated t value is 39.04 which is greater than the table value (3.53) at the level of $p<0.001$. The foot and hand massage is effective in reducing postoperative pain along with the pain medication among abdominal surgery patients.

Conclusion: Foot and hand massage was an effective, inexpensive technique to reduce the postoperative pain among abdominal surgery patients.

Key words: Effectiveness, Abdominal surgery patients, post operative pain.

CHAPTER – I

INTRODUCTION

1.1 Background of the study:

Pain is a general term that describes uncomfortable sensations in the body. It stems from activation of the nervous system. Pain can range from annoying to debilitating, and it can feel like a sharp stabbing or a dull ache. Pain can be consistent, can start and stop frequently, or can appear some conditions. People respond to pain differently. Some people have a high tolerance for pain, while others have a low tolerance. For this reason, pain is highly subjective. **(Linda, 2007).**

Pain is a universal experience that can span a vast spectrum of intensity, from mild distress to excruciating agony. Pain defined by the International Association for the study of pain (IASP) "as an unpleasant sensory and emotional experience associated with actual or potential tissue damage or described in terms of such damage". **(Black, 2005).**

Pain is an unbearable sensation and makes the patient exposed to dangers. The proverb, no gain without pain may not be always true in postoperative period. It is well recognized that pain inadequately relieved is lethal and can lead to a large number of complications in the postoperative period. Therefore the pain resulted from surgery must be relived absolutely. **(Manimala Rao, 2006).**

Combination of Pharmacological and non pharmacological therapies are desirable to attain the total pain relief. In man's hunt to gain liberty from pain, a number of non pharmacological therapies have been trendy for centuries. But the result of these measures remains scientifically untested. Additional works on these therapies makes inroads in the discipline of pain relief. **(Melerom, 2006).**

Analgesics have maximum effective dose; increasing the dose cannot increase pain relief, but may increase side effects. Tolerance also may occur when larger doses of medicines are needed to provide the same amount of pain relief as the previous smaller dose. Although

pharmaceutical medications continue to serve as a major contributor to pain management, non-pharmaceutical techniques are increasingly used to provide pain relief. **(Lewis, 2004).**

Physiological response to pain creates harmful effects that prolong the body's recovery after surgery. Patients routinely report mild to moderate pain even though pain medication has been administered. Complementary strategies based on some research finding are needed to supplement postoperative pain relief using pharmacologic management. **(Hans, 2013).**

Massage is the simple way of easing postoperative pain as well as aiding relaxation, promoting a feeling of well being and a sense of receiving good care. Massage is also thought to increase the threshold of pain through the release of endorphin. Massage is recognized as a safe treatment modality without risk or side effect. **(Basheer, 2009).**

Foot and hand massage has the potential to assist in pain relief. Massaging the foot and hands stimulates the mechanoreceptors that activate the non-painful nerve fibers, preventing pain transmission from reaching consciousness. **(Kaur, 2014).**

The foot and hand massage is an appropriate non pharmacological intervention in relieving acute postoperative pain in patient after abdominal surgery. The feet are easily accessible and can be massaged without disturbing the patient's privacy. **(Kordi, 2000).**

1.2 Need for study:

Effective relief of postoperative pain is a vital element of a patient's postoperative recovery. Failure to control pain effectively in the postoperative period can generate unfavourable immediate and long- term physical and psychological consequences that can rigorously upset an individual's quality of life. **(Abbaspoor, 2013).**

Pain is a multifaceted phenomenon and it is not a good idea to apply only one technique to manage it. The blend of pain relief practices, pharmacological and non pharmacological methods may lead to enhanced results in pain relief. **(Anjaly, 2011).**

Despite the availability of analgesic drugs and pain relieving techniques, pain remains a common problem and a significant fear for the patient during the postoperative period. The new emerging measures in pain management are complimentary therapies. The complimentary

interventions include cutaneous stimulation, massage, cold and hot therapies, Transcutaneous electrical nerve stimulation, distractions, relaxation techniques, guided imagery, and hypnosis. **(Shodhganga, 2013).**

Pain allied with surgery involving thoracic and abdomen is more severe, especially in first three days after surgery. Post operative pain influence the physical, emotional, psychological and social status of patients. Surgical procedure involving upper abdomen or chest reduces vital capacity and the ability to cough and deep breath, this can lead to retention of secretions, atelectasis and pneumonia. Unalleviated pain after surgery causes patient to encounter fear, anxiety, inadequate sleep and other post operative complications. The stress response to surgical treatment and pain also increases metabolism and consumption of oxygen. Pain can delay the mobilization and lengthens the hospital stay. **(Abdelaziz, 2009).**

Post operative pain can have a significant effect on patient recovery. An understanding of patient attitudes and concerns about post operative pain is important for identifying the ways health care professional improves postoperative care. Although pain is a predictable part of the postoperative experience, inadequate management of pain is common and can have profound implications, Unrelieved postoperative pain may result in clinical and psychological changes that increase morbidity and mortality as well as costs and the decrease quality of life. **(Chanif, 2013).**

Post operative pain management is a foremost responsibility of nurses who provide care for patients improving from surgery. In the post operative setting, the nurses, the closest persons to patient has a central role in assessing the patient with pain, implementing interventions and evaluating the patient's response to pain control remedies. **(Linusara, 2013).**

Post operative pain has a negative impact on patient's outcome. The overall prevalence of moderate to severe post operative pain reported is 17 to 40%, while a study revealed that 30-50% of the subjects suffered moderate to severe pain in the first day of operation. Foot and hand massage as non pharmacological method is effective on reducing pain after surgery. It is easy, safe, non invasive, and relatively cheap and most patients fell asleep while receiving foot and hand massage**. (Summer, et al, 2008).**

Foot and hand massage is a complementary therapy, which is safe, convenient and simple to perform. Several studies were done on foot and hand massage in reducing pain, especially the pain during the last stage of cancer. Such studies reported that it has significant effect on post operative pain also. **(Kaur, 2014).**

Massage therapy can also bring relief pain as part of Rheumatoid arthritis treatment. Several studies were done on foot and hand massage in reducing pain, reported patients experienced no pain and better grip strength, they also had less anxiety, sleep problems. **(Yemanefessehaye, 2014).**

Evidence is emerging that massage therapy may be an important component of the healing experience for patients after cardiovascular surgery. Nurses have used complementary therapies for many years to relieve anxiety, promote comfort, and reduce or alleviate pain**. (Brent, et al., 2010).**

This motivated the investigator to conduct a study on foot and hand massage in reducing postoperative pain in patients with abdominal surgery.

1.3 Statement of the problem:

A Study to Assess the Effectiveness of Foot and Hand massage in reducing level of Post-Operative Pain among Patients with Abdominal Surgery at selected Hospital, Coimbatore.

1.4 Objectives:

- To assess the level of postoperative pain among patients who have underwent abdominal surgery.
- To compare the level of postoperative pain among patients who have undergone abdominal surgery between before and after administration of foot and hand massage in experimental group and control group (routine therapy) as measured by numerical pain rating scale.
- To compare the post test level of pain among patients in abdominal surgery between experimental group and control group.

- To find out the association of pre-test level of pain among patients in experimental group and control group with selected demographic variables.

1.5 Assumption:

- Level of postoperative pain differs from patient to patient.
- Foot and hand massage can reduce the postoperative pain.

1.6 Hypothesis:

- **H_1** There will be a significant difference in the pre and post test level of postoperative Pain among patients undergoing abdominal surgery in experimental and control group.
- **H_2** There will be a significant association of the level of postoperative pain score of patients who have undergone abdominal surgery in experimental and control group with selected demographic variables.

1.7 Operational definitions:

Effectiveness: Effectiveness refers to outcome of the foot and hand massage, in terms of reduction of pain level as measured by numerical pain rating scale graded as 0- no pain, 1- 3 mild pain, 4-7 moderate pain, 8-10 severe pain.

Foot and hand massage: In this study it refers to the method of giving friction of the palms and soles and dorsum of the feet. The foot and hand massage was applied morning, afternoon, evening for 30 minutes each session, after 4 hours of pain medication.

Postoperative pain: It refers to the degree of pain experienced by patient who has undergone abdominal surgery in first three days of post-operative period as measured by numerical pain rating scale.

Postoperative abdominal surgery patients: In this study, it refers to the individuals who have undergone surgical procedures that involve opening of abdomen under General anaesthesia /Spinal anaesthesia. The common surgeries include appendectomy, cholecystectomy, and Hernioplasty and who are on the first postoperative day.

1.8 Projected outcome:

Foot and hand massage could reduce the postoperative pain among patients with abdominal surgery, as a complementary therapy.

1.9 Conceptual frame work:

Modified Roy's Adaptation model: Sr. Callista Roy put forwarded the adaptation model in 1976.Sister Callista Roy's Adaptation model describes a systematic approach to nursing care. Roy points out adaptation as a dynamic state of equilibrium involving both heightened and lowered responses, brought about by automatic and cognitive process, triggered by internal and external stimuli. She focused that the goal of nursing is to facilitate adaptation of individual for various stimuli from the environment. **(Peggy. L, 1994).**

In this model **Input** is identified as stimuli, which can be an internal or external. She identified three types of stimuli, focal stimuli, contextual stimuli, and residual stimuli. Focal stimuli are those directly confronted by the persons in a particular situation. In this study the surgical incision pain is experienced by the patients who have undergone abdominal surgery. Contextual stimuli are those other stimuli which influence the situation. In this study patients complaints of pain and the postoperative pain influenced by age, gender, type of incision, postoperative day. The residual stimuli are those make up characteristics of the person that are present and relevant to the situation. In this study residual stimuli are education and occupation.

Throughput makes use of person's process and effectors. Processes refer to the control mechanisms that a person uses as an adaptive system. Foot and hand massage act as the control mechanisms in this study. Effectors refer to the physiologic function, self concept and role function involved in adaptation. Foot and hand massage helps in pain reduction by blocking the transmission of pain impulse.

Output is organized as adaptive responses that promote person's integrity or ineffective response that do not promote goal attainment. **(Patricia J, 2005).** Less pain reduction and more pain reduction is considered as adaptive response in this study.

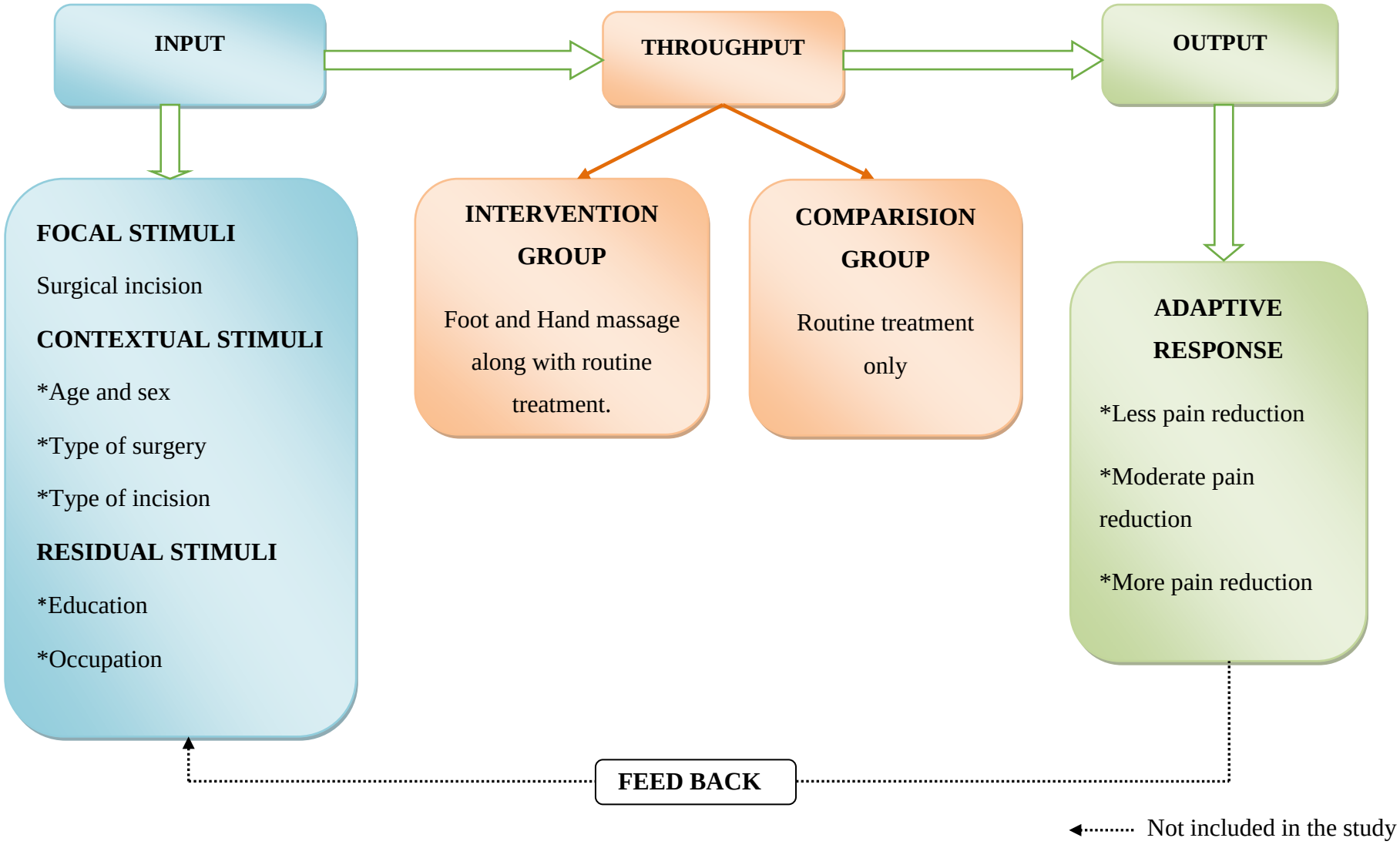

Figure 1.1 Modified Roy's Adaptation model to assess the effectiveness of foot and hand massage in reducing level of postoperative pain among patients with abdominal surgery

CHAPTER-II

REVIEW OF LITERATURE

A literature review is a description and analysis of the literature relevant to a particular field or topic. It gives an overview of what has been said, who the key writers are, what are the prevailing theories and hypotheses, what questions are being asked and what methodologies are appropriate and useful. **(Burns N, 2007).**

Review of literature is the writings of recognized authorities and of previous research which provides the evidence that the researcher is familiar with what is already known and what is still unknown. Citing studies that show substantial agreement and those that seem to prevent conflicting conclusions helps to sharpen and define understanding of the existing knowledge in the problem area, provides background for the research project and makes the reader aware of the status of the issue. **(Basavanthappa B.T, 2009).**

This chapter consists of literature and research studies related to:

2.1 Literature related to postoperative pain management after abdominal surgery.

2.2 Literature related to effect of foot and hand massage reducing postoperative pain.

2.1 Literature related to postoperative pain management after abdominal surgery.

A non experimental study was conducted at German hospital to assess the pain intensity on the first day after surgery and to improve post-operative pain therapy, to develop procedure specific to optimize pain treatment protocols. The study recruited 115,775 patients from 578 surgical wards in 105 German hospitals with 70764 patients who were asked to rate their worst pain intensity since surgery with numeric scale 0-10. Results revealed that 40 procedures with the highest pain scores (median numeric scale, 6-7) included 22 orthopaedic/trauma procedures on the extremities. Patients reported high pain scores after many minor surgical procedures, including appendectomy, cholecystectomy, haemorrhoidectomy and tonsillectomy, which ranked among 25 procedures with higher pain intensities. A number of major abdominal surgeries resulted in comparatively low pain scores, often because of sufficient epidural analgesia. **(Hans, et al., 2013)**

An experimental study was conducted to compare the pain experience of medical, surgical inpatients and patients attending a pain management centre. Medical inpatients with

significant pain (moderate or severe pain on a verbal rating scale) using a battery of psychometric questionnaires and comparator samples of surgical inpatients and patients attending the pain management centre were recruited. Results of the study revealed medical group (n=37) and the surgical group (n=38) had similar prevalence of pain (16.7% and 19.9%). Chronic median pain (24/40, 25/40) was common in the medical group (54%) and the surgical group (50%), also the study found that the characteristics of pain in medical and surgical groups were similar, with high levels of anxiety and depression. **(Rockett, Simpson, Crossley and Blowey, 2013).**

A survey was conducted among 200 non- teaching and 101 teaching U.S hospital to describe the structure and functions of the Acute Pain Services (APS). Data were collected through mailed questionnaire. Over all response rate was 35.9%. They found that APS was more formally organized in teaching hospital than non- teaching hospitals. APS includes Pain at rest (97%), Pain on activity (63%) and pain reassessment after intervention (88.8%). Intravenous patient controlled analgesia (IV-PCA) was managed by surgeons (75%). Epidural analgesic peripheral nerve block infusion was managed by anaesthesiologists. Sixty two percentage of Register nurses to adjust the IV PCA setting within set parameters and 43% of the RNs had adjustment of epidural infusion rates and 21% practised peripheral nerve catheter local anaesthetic infusion rate. The nurses do not have any independent role to control the pain in hospital setting. **(Dawoodjo E, Girish P and Gary, et al., 2011)**

A descriptive study to measure the prevalence of post-operative pain, in 1490 surgical patients who were receiving post-operative pain treatment according to an acute pain control. Measures of pain (scores from 0-100) on a visual analogue scale were obtained three times a day on the day before surgery and on the days 0-4 post-operatively; mean pain intensity scores were calculated. Patients were classified as having no pain (score 0-5), mild pain (score 6-40), moderate pain (score 41-74) or severe pain (75-100). Results of the study revealed moderate or severe pain reported by 41% of the patients on day 0, 30% on days 1 and 19%, 16% and 14% on days 2, 3 and 4.The prevalence of moderate or severe pain in the abdominal surgery group was high on postoperative days 0-1 (30-55%). A high prevalence of moderate or severe pain was found during the days 1-4 in the extremity surgery group (20-71%) and in the back/spinal surgery group (30-64%).Thus the study revealed that inspire of acute pain 24 protocol, post-operative pain treatment was unsatisfactory, especially after immediate and major surgical procedures**. (Sommer, et al., 2008).**

A survey was conducted among 2252 surgical and 999 non- surgical patients from 25 hospitals and the report showed that 12.4% of surgical, 16.7% of non -surgical patients reported no pain, 29.5% of the surgical, 36.8% of the non -surgical patients reported severe pain while moving and 50% of the surgical, 57% of the non -surgical patients reported that they were not satisfied with their pain management interventions. 45.6% of inadequate pain management was observed in surgical group and 29.6% in non- surgical groups**. (Christoph Maier, et al., 2010).**

This prospective randomized study compared the effectiveness of patient controlled epidural analgesia with local anesthetic and opioid (PCEA) and patient controlled analgesia with intravenous morphine (PCA) after major abdominal surgery at emergency clinical Hospital of Constanta, department of anesthesiology and intensive care, Constanta on postoperative pain management after abdominal surgery. Patients were randomly allocated into two groups, group A received PCEA (0.1% ropivacanew and 5 mg/ml Fentanyl basal infusion of 3-4 ml/hr.), group B whom PCA with intravenous infusion of morphine (1mg/ml). Demographic data were similar in two groups. Pain relief was statistically better at rest ($p<0.001$) and after coughing ($p<0.004$) in group A. Incidence of nausea and vomiting episodes as well as sedation scores were significantly lower in group A than in B ($p<0.001$). Both have significant effect in reducing pain with minimal side effect. **(Pataket al., 2013).**

The study was a multicenter descriptive cross-sectional drug utilization study in 12 Spanish Hospitals for each patient information about the surgical procedure and the use of analgesics was prospectively collected. A study conducted in Spanish Hospitals to know the severity of postoperative pain and to determine the extent of variability in the management of post operative pain among the participating centers. The severity of postoperative pain was assessed during Fist day after surgery using visual analog scale. Nine hundred and ninety three patients were included, 58.6% of patients received non-opioid analgesics only 9% received opioid analgesic and 27% received both opioid and non-opioid analgesics. Most frequently used drugs were metamizole (667 pt.) and pethidine (213 pt.) Although in majority of medical orders the administration of analgesics was scheduled at regular interval of time. Thirty eight percent (371/967) of patient rated their maximum pain on first day as severe to unbearable. The percentage of patient in each center who suffered severe to unbearable pain varied from 22 to 67% conducted that in Spain many patients still suffer pain after abdominal surgery and this seems to be due to inadequate use of pain management measures. **(Birnbaum, 2012).**

A descriptive study was conducted on administration of intravenous ketoprofen in postoperative pain treatment after major abdominal surgery in Svelte Duh General Hospital, multimodal analgesia (eg. opioids and NSAIDs or local anesthetics) is recommended for effective postoperative pain relief. They conducted a randomized, double blind, placebo controlled study to assess the analgesic efficacy and safety of ketoprofen after major abdominal surgery one and nine hours postoperatively patients received 100 mg of ketoprofen. I.V (n=21) or placebo (n=22) in addition to a pain treatment protocol consisting of continuous infusion of tramadol 200 mg and Metamizole 5g over 24 hours with additional 25 mg I.V. tramadol in case of inadequate analgesic. Pain was assessed and the total of tramadol used in First 24 hours was recorded. Patients in ketoprofen group had significantly lower pain score both at rest and at deep breath at 3rd hour ($p<0.01$), 6 and 12th hour ($p<0.05$) post operatively. The 24 hour use of tramadol was significantly lower in ketoprofen group ($p<0.01$) with less nausea and vomiting study showed that value of short term use of ketoprofen to improve the quality of analgesia after major abdominal surgery without much adverse effect**. (Simona, Denisa, 2007)**

2.2 Literature related to effect of foot and hand massage reducing postoperative pain.

An experimental study was conducted to determine the efficiency of foot and hand massage on reducing postoperative pain among Turkish women in 2010. Among 281 patients who had undergone caesarean section using random sampling method. The study found that the difference between numerical rating scores before and after massage ($p<0.01$) and Numerical Rating Scale scores before and 60 minutes after the massage ($p<0.001$) was statistically meaningful. The findings indicated that the pain intensity levels of the patients in the intervention group were significantly different than the control group. The study concluded that foot and hand massages were useful as an effective nursing intervention in controlling postoperative pain. **(Wang, 2010).**

A quasi experimental study was conducted to determine the effectiveness of reflexology (foot massage) in reducing pain in specific urology conditions of patients admitted in Urology Ward, CMC Vellore. A sample of 30 patients was selected from the Urology Ward where patients underwent major and minor urological surgeries. Each patient was given 30-45 minutes of foot massage, pre and post-assessment of pain was done using visual analogue scale, using a ten-point scale with scoring 0-10 and the interview schedule using a Likert scale with scoring 0-3. Results showed after foot massage the pain level of 19

patients (63.3%) were reduced from severe to moderate and for (6.6%) was reduced from moderate mild and for 9 patients (30%) it remained in same level. A significant difference between pre and post nursing intervention in reduction of pain for 30 samples ($p<0.01$). The study concluded that the foot massage is the best nursing intervention and it can be introduce into nursing curriculum as a best method of pain reduction. **(Khalilian, 2014).**

An experimental study was conducted to test the impact of foot massage on the level of pain heart rate and blood pressure among patients with abdominal surgery. Sample comprised 30 abdominal surgery patients selected by purposive sampling method. Pre-assessment pain intensity, heart rate, and blood pressure were recorded. Foot massage with low stroke manipulations was applied on each leg of the subject for 10 minutes. Pain intensity, heart rate, and blood pressure were recorded immediately after the intervention and again after 10 minutes. The result showed that there was a significant difference between pre- and post-foot massage pain score, heart rate, and blood pressure ($P<0.05$). The study concluded that foot massage is an effective non pharmacologic measure in reducing postoperative pain. **(Muller, 2007)**

A randomised controlled study was conducted to evaluate the effects of foot massage on acute postoperative pain and anxiety among patients with digestive cancer among sixty-two Taiwan patients who had received surgery for gastric cancer or hepatocellular carcinoma. Subjects were randomly allocated to an intervention ($n = 30$) or control ($n = 31$) group. Patients in the intervention group received the usual pain management plus 20 minutes of foot reflexotherapy during postoperative days 2, 3, and 4. Patients in the control group received usual pain management. Results indicated that less pain ($P<0.05$) and anxiety ($P<0.05$) over time were reported by the intervention group compared with the control group. The study concluded that foot massage is an effective intervention in reducing postoperative pain and anxiety among patients with digestive cancer. **(Piner, 2006).**

An experimental study was conducted in a University Hospital in Seoul Korea on 40 patients who operated under G/A to investigate the effect of foot massage on pain in post-abdominal operative patients. Severity of pain was checked with VAS. Collected data were analysed using Chi square, Fisher's Exact Test, and t-test. The study showed that severity of pain decreased significantly in the experimental group as compared to the control group following foot massage ($t=-3.37$, $P=0.002$). The PR in the experimental group was lower than that in the control group following foot massage ($F=7.73$, $P=0.008$). The SBP in the

experimental group was lower than that in control group following foot massage (F=25.75, P=0.000). **(Gungor, 2006)**

A randomized controlled study was conducted to assess the effectiveness of hand-foot massage on post-operative pain among open heart surgery patients. The study design was a Randomized Control Trial and was performed in the Cardio-thoracic unit, Kasturba Hospital, Manipal. Thirty patients were selected based on sampling criteria and were randomly allocated to the experimental (n=15) and control group (n=15). Preoperative pain was measured for both the groups using Numerical Pain scale and Observational checklist for behavioral response to pain. In the post-operative period, 20 minutes of Hand-foot massage was given to the experimental group along with the routine care and the control group received only the routine care. Statistically significant difference was found based on numerical pain scale (p=0.02) and observational checklist for behavioral response to pain (p<0.01) in the level of pain between the experimental and control group. Hence, it was concluded that hand-foot massage was effective in reducing post-operative pain in open heart surgery patients. **(Simranjeet Kaur, 2013).**

A quasi experimental study was conducted to determine the effect of foot massage on pain level among patients after abdominal surgery. The study was conducted at Surgical Department in Menoufia University Hospital. A purposive sample of sixty four patients who had abdominal surgery assigned alternatively & randomly into two equal groups. Thirty two patients for each group (study &control). An interviewing questionnaire to assess socio demographic data& types of operations. Numeric pain scale to assess subjective pain. The results showed that there were statistically significant decreased of subjective pain score among study group rather than control group after foot massage. There was no significant relation between pain score and gender, education & marital status. So foot massage has a positive effect on reducing pain after abdominal surgery**. (Amal El. Shehata, et al., 2016).**

A pre experimental one group pretest posttest study was conducted to evaluate the effectiveness of foot massage therapy to reduce pain among rheumatoid arthritis patients. The study was conducted at K.C.G Hospital at Bangalore. A convenient sampling technique to select 30 samples within the age group of 40-80 years. The tool used for data collection was modified pain and physical disability assessment scale and visual analog scale. Then the investigator provided foot massage for 15 minutes once a day for 5 consecutive days and assessed the posttest on 5^{th} day. Posttest level of pain and physical disability showed that 22

(73.33%) had mild pain 8(26.66%) patients had moderate pain. The result showed that there is reduction of pain and physical disability after foot massage therapy among rheumatoid arthritis patients. **(Yemane fessehaye .S et al., 2014).**

A quasi experimental design was used to investigate any causality between foot massage and postoperative pain with a total of 60 breast cancer patients (n = 30 in the control group who received only analgesic treatment and n = 30 in the experimental group who received analgesic treatment plus foot massage). A structured questionnaire was developed by the researcher to collect data related to participants' characteristics such as age, level of education, type of surgery and usage of Non-steroidal Anti Inflammatory Drugs [NSAIDs]. Following an initial complaint from patients that they were experiencing post-operative pain the pain intensity level was assessed by a Visual Analogue Scale [VAS] as a baseline and after 60 minutes and 120 minutes following foot massage. Vital signs were assessed using the same time intervals. The Findings of When analyzing pain levels over time a significant difference was found between both groups with the mean pain level of the experimental group who had experienced foot massage as an adjunct to analgesia being noted to be lower than that of the control group. A statistically significant reduction of systolic and diastolic blood pressure in both groups was also observed but a higher reduction was observed in the experimental group ($P < .001$). The result showed that Foot massage is an effective modality in helping to relieve postoperative pain among women who have been treated with surgery for breast surgery**. (Salwa Hagag Hussien Abdelaziz, Hala Ezzat Mohammed, 2013).**

Summary:

Literature related to Foot and hand massage helped to identify the objectives and procedure protocol of massage therapy. The literatures laid the foundation for the present study which briefly describes procedure protocol, selection criteria and method of analysis. These reviews gave an idea regarding selection of MC Gill Questionnaire. Seventeen studies which included survey study, randomized and experimental study were reviewed deeply for the present study. In conclusion reviews evaluate the effect of massage therapy for abdominal surgery patients. This literature review confirmed that abdominal surgery patients pain level was reduced by foot and hand massage. Also literatures had not adequately explained about foot and hand massage. So the present study will be planned to analyse the effectiveness of foot and hand massage in reducing level of postoperative pain among abdominal surgery patients.

CHAPTER – III

MATERIALS AND METHODS

Research design is the blueprint for conducting a study. It maximizes control over factors that could interfere with the validity of the study findings **(Susan k. Grove et al., 2013).** The present study is designed to assess the effectiveness of foot and hand massage and in reducing level of post operative pain among patients with abdominal Surgery at selected Hospital, Coimbatore. The methodology of the study constitutes of research design, setting, selection of population and sampling, criteria for selecting samples, instruments and tools for data collection and method of data analysis.

3.1 Research approach:

In this study, quasi experimental research approach was adopted. In this study intervention group of patients received the foot and hand massage and also comparison group of patients received routine care.

Research design:

Quasi- experimental design:

Time series design

Quasi experiments are like true experiments that involve an intervention. This design lack randomization, the signature of a true experiment. The signature of a quasi experimental design is an intervention is the absence of randomization. Time series with multiple institution of treatment is useful when the researcher wants to measure the effects of a treatment over a long period of time. **(Polit, 2009)**

Research design:

Quasi experimental design:

Time series design:

Intervention group

$O_1 \longrightarrow X_1 \longrightarrow O_2 \longrightarrow X_1 \longrightarrow O_3 \longrightarrow X_1 \longrightarrow O_4$

Comparison group

$O_1 \longrightarrow X_2 \longrightarrow O_2 \longrightarrow X_2 \longrightarrow O_3 \longrightarrow X_2 \longrightarrow O_4$

Where,

O_1- Pre assessment of post operative pain among abdominal surgery patients using numerical pain rating scale.

O_2, O_3, O_4, - Observation of pain level using numerical pain rating scale.

X_1 - Foot and hand massage given three times per day.

X_2- Routine care (medication)

3.2 Variables of the study:

3.2.1 Independent variable:

The independent variables within the study were foot and hand massage administered to postoperative patients who have undergone abdominal surgery.

3.2.2 Dependent variable:

The dependent variable in the study was level of postoperative pain.

3.3 Setting of the study:

This study was conducted in male and female surgical ward, Gastroenterology ward, postoperative ward at PSG Hospitals, Peelamedu, Coimbatore. The Hospital in a multi speciality hospital and research centre with bed strength of 1315 which caters multi lingual patients from various parts of the country. The PSG Hospitals has an outpatient facility whereby around 1000 patients take medical advice every day. This is the first teaching

hospital in Tamilnadu and the third teaching hospital in India to get certified by National Accredited Board for Hospitals and Health Care Providers (NABH). The study was conducted in the abdominal surgery patients.

The study was conducted in the male and female surgical ward, gastroenterology ward. Bed strength of the female surgical ward was 30 and male surgical ward bed strength was 30 and the gastroenterology ward bed strength was 30.

3.4 Population and sampling:

The population composed of patients with abdominal surgery at PSG Hospitals, Coimbatore. The total numbers of patients admitted from 2015 to 2016 were 700 patients. Sample size was calculated by using allowable error method.

3.4.1 Sampling technique and sample size:

The sampling technique used in this study was purposive sampling technique. The calculated sample size was 50 patients. The postoperative abdominal surgery patients who met the inclusion criteria were selected for this study. Total samples were 50 abdominal surgery patients and grouped as 25 in the intervention group receive foot and hand massage and 25 in the comparison group receive routine care.

Sample size and calculation:

Allowable error method

$$n = \frac{4pq}{L^2}$$

P = Mean / Total population in a year x100

= 58/700 x100 = 8.2

q = 1-p

q = 100-8.2

q= 91.8

L= allowable error (8)

$$n = \frac{4 \times 8.2 \times 91.8}{8 \times 8} = 48$$

Estimated sample size is 48.

3.4.2 Sampling Criteria:

3.4.2.1 Inclusion criteria:

- Postoperative patients who have undergone abdominal surgery.
- Patients who are willing to participate in the study.
- Post operative patient with stable vital signs.

3.4.2.2 Exclusion criteria:

- Patients who had damaged skin, inflammation, eczema on their hands or feet.

3.5 INSTRUMENTS AND TOOL FOR DATA COLLECTION:

Tool consist of three sections

Section A: Demographic data

Section B: Surgical details

Section C: Pain assessment

Section A: Demographic data

Baseline profile such as patient's age, sex, education and occupation status.

Section B: Surgical history

Consist of patient's present surgical details such as preoperative diagnosis, name of the surgery, post operative day, type of anaesthesia used, type of incision, analgesics prescribed.

Section C: Mc Gill pain Questionnaire

Mc Gill pain Questionnaire, developed at Mc Gill University by Melzack and Torgerson in 1971. It consists of characteristics of pain like throbbing, shooting, stabbing, cramping. The Numerical pain rating scale has marking from 0 to 10, where 0 indicate no pain and 10 indicate worst pain. Numerical pain rating scale has the score of 0 (no pain), 1-3 (mild pain), 4-7 (moderate pain), 8-10 (severe pain).

Techniques of Data collection:

Demographic data and medical history collected through interview method and retrieved from medical records. Postoperative pain among abdominal surgery patients were assessed using numerical pain rating scale through interview method.

Intervention:

Foot and hand massage: A brief introduction on foot and hand massage explained to the participants and relatives. Foot and hand massage is repeated for 3 times per day for consecutive 3 days.

Steps: Foot massage

1. Foot of the patient placed in convenient position.
2. Stood at the right side to the patient.
3. Applied 5 ml of coconut oil on feet. Gentle foot massage was given in left foot.
4. Spread oil on the feet and leg and rub the oil from the heels to sole and toes.
5. Stood in front to the patient.
6. Hold the heel in one hand and start rotating the ankle in a gentle motion, four times left and four times right. Use the thumb and start to massage the top of the feet in a circular movement from toes to ankle.
7. Hold the foot firmly, gently pull and rotate each toe three times right and three times left.
8. Again massage the back of the toes and ball of the foot in a circular movement.
9. Then finish the massage with gentle strokes along the feet and leg with finger tips.
10. The step 1-9 was repeated for right leg.
11. Foot massage was given on each leg for 15 minutes and continue to right foot.
12. Foot massage given at morning, afternoon, evening after 4 hours of medication.

Hand massage:

1. Hand of the patient placed in convenient position.
2. Stood at the right side to the patient.
3. Applied 5 ml of coconut oil. Gentle massage given left hand.
4. Face the palm down. Press with the thumbs and make little circles around the wrist bone.

5. Turn the wrist over and stroke the inside of the wrist with thumbs.
6. Press firmly and stroke toward the palms and back to the wrist.
7. Stroke should move towards the knuckles and then back towards the wrist.
8. Then massage of the each fingers.
9. Stroke the palm with firm, even motions that move away from the wrist. Then massage the center of the palm using circular motion and continue to the right hand.
10. The steps 1-9 was repeated for right hand.
11. Hand massage given at morning, afternoon, evening after 4 hours of medication.

3.6 Validity and reliability of tool:

Validity of the tool:

Content Validity of the tool was obtained from experts of different departments. The experts gave their opinions, clarity and appropriateness of the tool.

Reliability of the tool:

Reliability of the tool MC Gill questionnaire was determined using inter rater reliability method. It was computed using spearman rank coefficient method. The reliability of the MC Gill questionnaire was found to be 0.94. The tool was found to be highly reliable for the study. Numerical pain rating scale inter rater reliability was high which is 0.96.

3.7 Ethical approval:

The Institutional Human Ethics Committee, PSG Institute of Medical Science and Research reviewed the proposal on its full board meeting and approved the study to conduct. The Institutional Human Ethics Committee consists of fifteen members of different areas of expertise. After getting clearance from Institutional Human Ethics Committee data collection was done.

3.8 Data collection procedure:

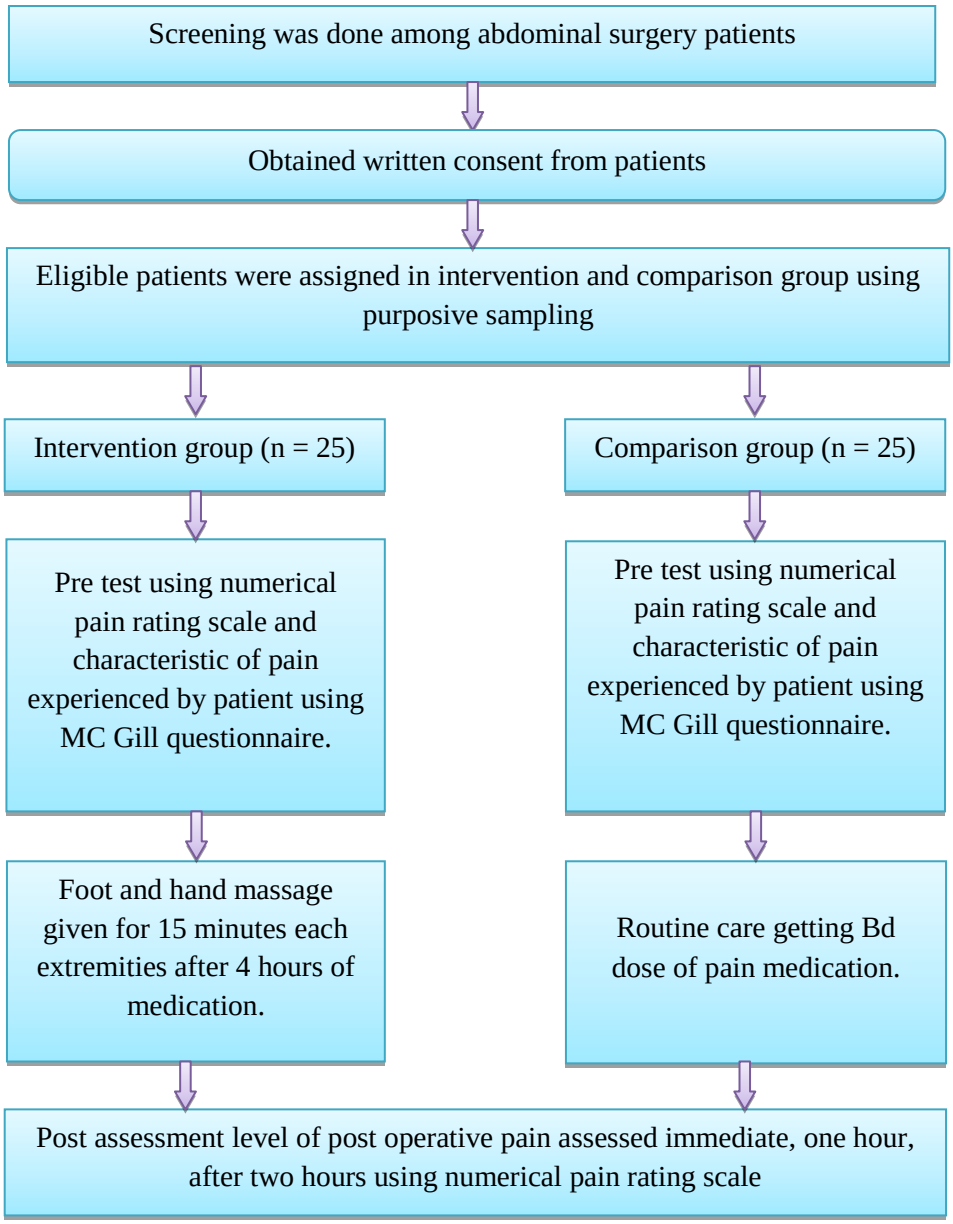

Figure 3.1 Schematic representation of data collection procedure

3.9 Report of the pilot study:

Pilot study was conducted to test the practicability of the tool and feasibility of tool of conducting the study. It was conducted for a period of one week from 19-09-16 to 24-09-16, in the surgical ward, Gastroenterology ward, PSG hospitals. For pilot study 10 abdominal surgery patients were selected based upon purposive sampling and according to the inclusion criteria. Pre-test was conducted on 19.09.16. From first day, intervention foot and hand massage was given to reduce the pain among abdominal surgery patients. The post test was conducted 3 times a day. The data were tabulated and analysed using descriptive and inferential statistics. By using paired ‘t’ test data analysis was done and the‘t’ test value was 4.474 which is significant at the level of ($p<0.05$). By using chi square test data analysis was done to find out the association between pre-test levels of pain selected demographic variables among intervention and comparison group of abdominal surgery patient. The result showed that the calculated value were less than tabulated value. Hence there was no significant association between the level of postoperative pain with selected demographic variables. Through the pilot study, the reliability and practicability of the tool and feasibility of the study has been found. There were no changes brought after pilot study.

3.10 Data analysis plan:

The data was analysed using descriptive and inferential statistics.

Descriptive statistics:

- Frequency and percentage distribution of samples to assess the demographic variables.
- Frequency distribution, mean, standard deviation will be used to describe the level of post operative pain before and after administration of foot and hand massage.

Inferential statistics:

- Paired 't' test was used to find the significant differences between the pre-test and post-test level of post operative pain among abdominal surgery patients in both groups.
- Independent 't' test was used to assess the significant differences in post-test level of pain between the intervention and comparison group.
- Chi square test was used to find out the association of pre test pain level of patients underwent abdominal surgery.

CHAPTER-IV

DATA ANALYSIS AND INTERPRETATION

Analysis is a process of organizing the data in such a way that research question can be answered **(Polit and Hungler, 2009)**. This chapter deals with the analysis of the data collected from the patient and the interpretation of the results helps in making sense of the results of a study. The data was collected to assess the effectiveness of foot and hand massage in reducing level of post operative pain among patients with abdominal surgery at PSG Hospital.

The analysis in this chapter includes:

4.1 Post operative abdominal surgery patients according to demographic variables.

4.2 Post operative abdominal surgery patients according to surgical history.

4.3 Post operative abdominal surgery patients according to characteristics of pain experienced during post operative period.

4.4 Comparison of pre and post test level of post operative pain among intervention group and comparison group based on the numerical pain rating scale.

4.5 Effectiveness of foot and hand massage in reducing post operative pain among abdominal surgery patients in intervention group.

4.6 Effectiveness of foot and hand massage in reducing post operative pain among abdominal surgery patients in comparison group.

4.7 Comparison of post test level of post operative pain among abdominal surgery patients between intervention group and comparison group.

4.8 Association between the pretest level of postoperative pain with selected demographic variables among intervention group and comparison group.

Section 4.1 Post operative abdominal surgery patients according to demographic variables.

TABLE 4.1: Frequency and percentage distribution of abdominal surgery patients in intervention and comparison group according to demographic variables:

n=50

Demographic variables	Intervention group n=25				Comparison group n=25			
Age and gender (Age in years)	**Male**	**%**	**Female**	**%**	**Male**	**%**	**Female**	**%**
20 - 30 years	-	-	1	4%	-	-	4	16%
31 - 40 years	2	8%	3	12%	2	8%	2	8%
41 - 50 years	3	12%	5	20%	2	8%	3	12%
51 - 60 years	7	28%	4	16%	4	16%	-	-
61 - 70 years	-	-	-	-	5	20%	3	12%
Education								
Primary school	7		28%		7		28%	
Middle School	5		20%		5		20%	
High school	4		16%		5		20%	
Higher secondary	4		16%		7		28%	
Graduate	5		20%		1		4%	
Occupation								
House wife	13		52%		10		40%	
Coolie	9		36%		10		40%	
Business	2		8%		-		-	
Teacher	1		4%		1		4%	
Driver	-		-		4		16%	

Age of the patients with abdominal surgery:

Table 4:1 shows that among 50 patients, majority of the patients 15 (60%) were in age group between 51-60 years this comprised of 11 (44%) patients in intervention group and 4 (16%) patients in comparison group. Thirteen patients were in age group of 41-50 years of age group.

Sex of the patients with abdominal surgery:

Tables 4:1 reveals that majority of patients were male 25 (50%) comprising 12 (24%) patients in intervention group and 13 (26%) patients in comparison group.

Education qualification of patients with abdominal surgery:

Table 4:1 shows that among 50 patients, 14 patients (56%) had only primary education comprising 7 (28%) patients in intervention group and 7 (28%) patients in comparison group.

Occupation of patients with abdominal surgery:

Table 4:1 reveals that majority of patients were house wife (92%) comprising 13 (52%) patients in intervention group and 10 (40%) in comparison group.

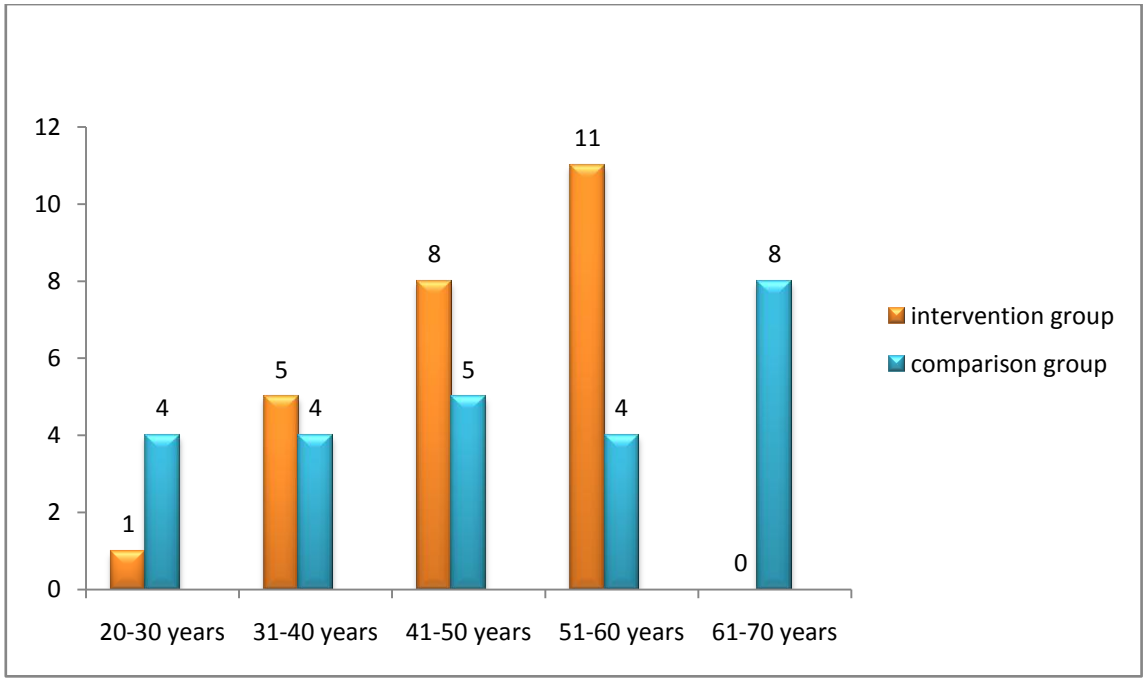

Figure 4.1: Bar diagram shows frequency and percentage distribution of abdominal surgery patients in intervention and comparison group according to their age

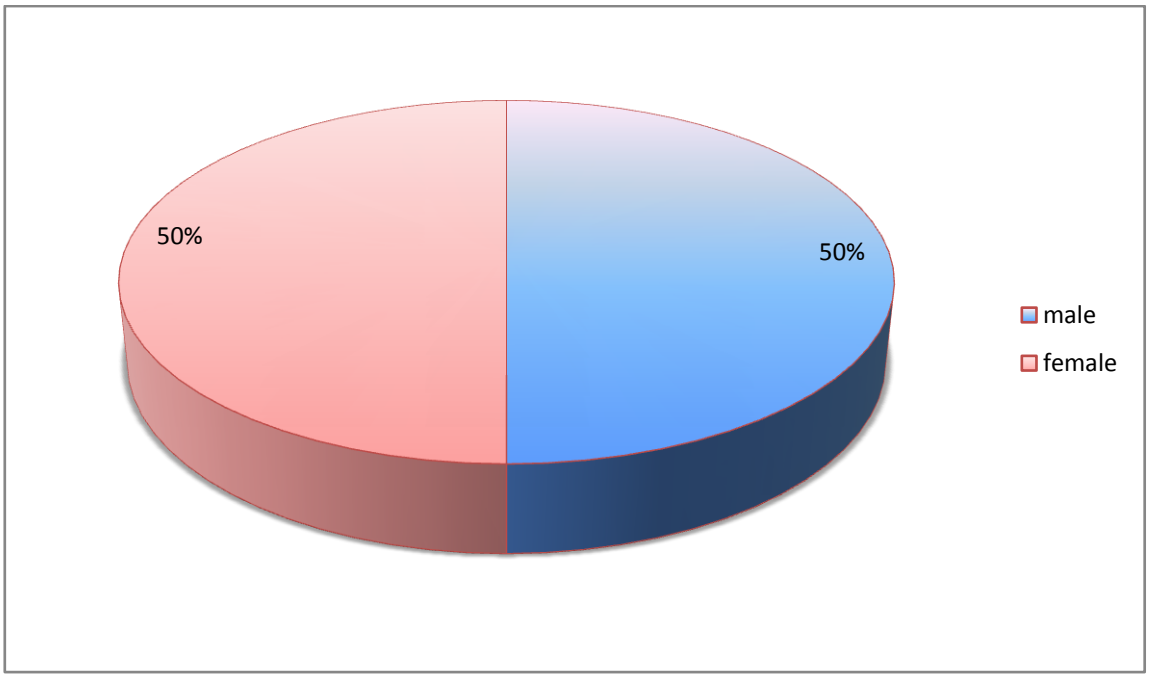

Figure 4.1.2: Pie diagram shows frequency and percentage distribution of abdominal surgery patients in intervention and comparison group according to their gender

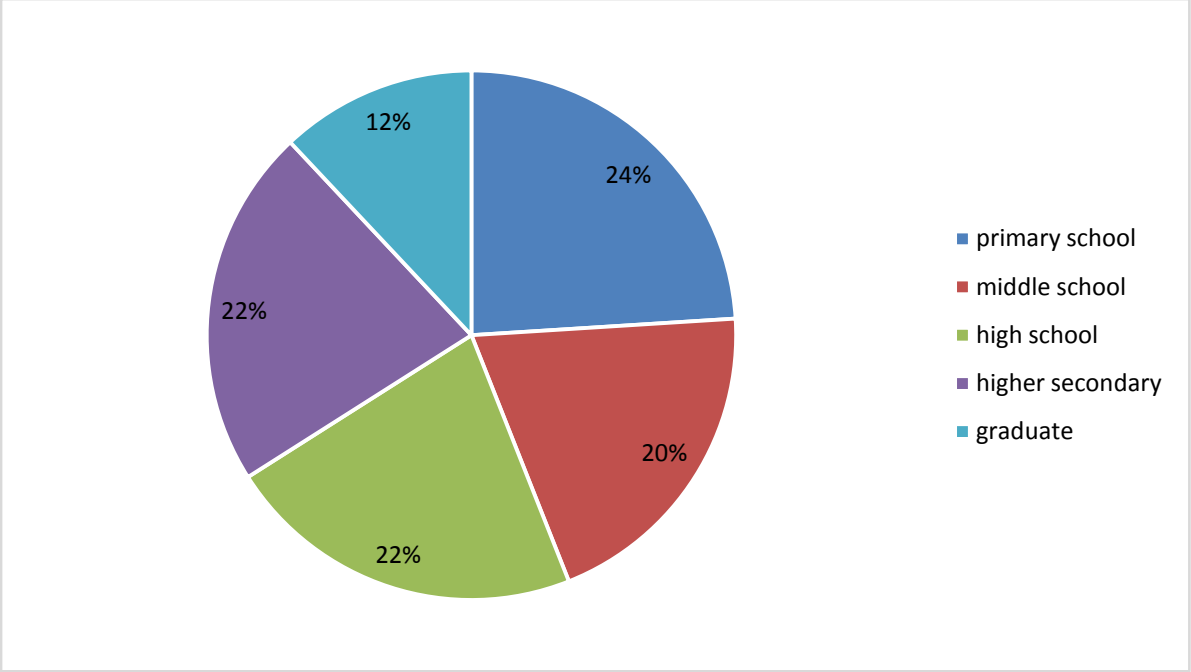

Figure 4.1.3: Pie diagram shows frequency and percentage distribution of abdominal surgery patients according to their education

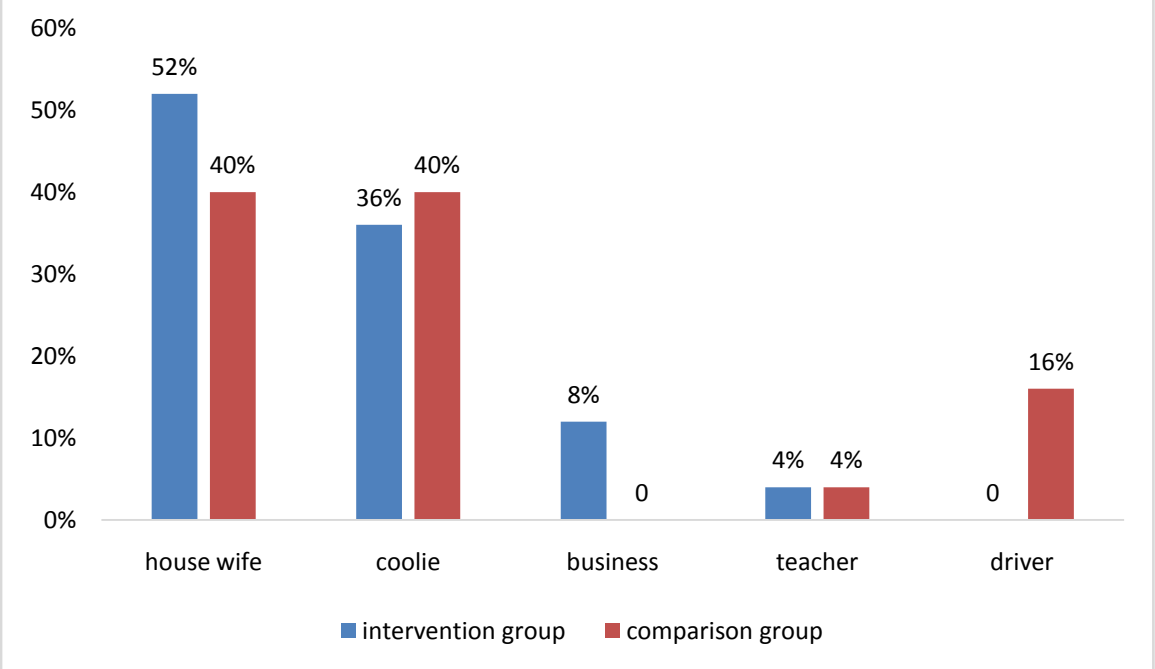

Figure 4.1.4: Bar diagram shows frequency and percentage distribution of abdominal surgery patients in intervention and comparison group according to their occupation

Section 4.2 Post operative abdominal surgery patients according to surgical history.

TABLE 4.2: Frequency and percentage distribution of abdominal surgery patients in intervention and comparison group according to their surgical history:

n = 50

Surgical History	Intervention group n=25		Comparison group n=25	
	f	%	f	%
Diagnosis				
Cholecystitis	7	28%	11	44%
Appendicitis	7	28%	5	20%
Umblical hernia	2	8%	4	16%
Inguinal hernia	9	36%	5	20%
Name of the surgery				
Cholecystectomy	7	28%	11	44%
Appendectomy	7	28%	5	20%
Hernioplasty	11	44%	9	36%
Type of anesthesia				
Spinal	1	4%	4	16%
General	24	96%	21	84%
Type of incision				
Midline	1	4%	4	16%
Para median	1	4%	2	8%
Kocher incision	4	16%	9	36%
Mc Burney incision	6	24%	3	12%
Oblique incision	13	52%	7	28%
Analgesics prescribed				
Inj. Tramadol (50 mg)	24	96%	25	100%
Inj. Voveran (75 mg)	1	4%	-	-
Route of Administration				
Intra muscular	2	8%	1	4%
Intravenous	23	92%	24	96%

The table 4.2 inferes that most of them 9 (36%) in the intervention group were diagnosed as inguinal hernia and in the comparison group 11 (44%) of them were with cholecystitis. Among 11 (44%) patients of them in the intervention group were hernioplasty surgery done. In comparison group, 11 (44%) patients underwent cholecystectomy surgery. Regarding type of anesthesia most of them in the intervention group were undergone general anesthesia. In comparison group 21 (96%) patients were undergone general anesthesia. Regarding type of incision used among intervention group most of them 13 (52%) undergone oblique incision and in the comparison group 9 (36%) of them undergone kocher incision. Regarding the analgesics, the intervention group 24 (96%) patients are receiving inj. Tramadol (50 mg) and in comparison group 25 (100%) patients receiving inj. Tramadol. Regarding route of administration, the intervention group 23 (92%) patients are receiving intravenously and in comparison group 24 (96%) patients receiving intravenously and 1(4%) patients receiving intra muscular injection. All patients receiving Bd dose of medication.

Section 4.3 Post operative abdominal surgery patients according to characteristics of pain experienced during post operative period.

TABLE 4.3: Frequency and percentage distribution of patients according to the characteristics of pain experienced during post operative period: n=50

S.No	Pain characteristics	No of patients												Total
		Intervention group						Comparison group						
		Mild		Moderate		Severe		Mild		Moderate		Severe		
		f	%	f	%	f	%	f	%	f	%	f	%	
1	Throbbing	1	4	-	-	2	8	-	-	-	-	3	12	24%
2	Shooting	-	-	-	-	-	-	-	-	-	-	2	8	8%
3	Stabbing	-	-	3	12	5	20	3	12	5	20	1	4	58%
4	Sharp	1	4	-	-	3	12	-	-	-	-	1	4	20%
5	Cramping	2	8	1	4	7	28	-	-	2	8	8	32	80%
6	Gnawing	1	4	1	4	-	-	-	-	-	-	-	-	8%
7	Hot burning	-	-	-	-	-	-	-	-	-	-	4	16	16%
8	Aching	2	8	1	4	3	12	-	-	2	8	-	-	32%
9	Heavy	-	-	-	-	5	20	-	-	1	4	-	-	24%
10	Tender	-	-	-	-	-	-	1	4	-	-	-	-	4%
11	Sickening	-	-	-	-	2	8	2	8	-	-	-	-	16%
12	Fearful	2	8	1	4	1	4	5	20	-	-	-	-	36%

The table 4.3 describes the characteristics of pain experienced by patients during the post operative period In the intervention group majority of patients 7 (28%) reported cramping pain at surgical site after abdominal surgery and in comparison group 8 (32%) patients reported cramping pain at surgical site after abdominal surgery. In the intervention group 5 (20%) patients had severe stabbing pain and heavy pain and in the comparison group 5 (20%) patients had moderate stabbing pain 1 (4%) patient had severe stabbing pain. In the intervention group 5(20%) patients had heavy pain and in comparison group 4 (16%) patients had hot burning pain. Sixteen patients were experienced more than two characteristics of pain.

Section 4.4 Comparison of pre and post test level of post operative pain among intervention group and comparison group based on the numerical pain rating scale.

Table 4. 4 : **Comparison of pre and post test level of post operative pain among Intervention group and the Comparison group based on the numerical pain rating scale**

n=50

S.No	Numerical rating scale	Level of pain	Intervention group n = 25								Comparison group n= 25							
			Before		Post test						Before		Post test					
			Pre test		Day 1		Day 2		Day 3		Pre test		Day 1		Day 2		Day 3	
			f	%	f	%	f	%	f	%	f	%	f	%	f	%	f	%
1	0	No pain	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	1 – 3	Mild pain	-	-	-	-	19	76	23	92	-	-	-	-	-	-	-	-
3	4 – 7	Moderate pain	1	4	25	100	6	24	2	8	-	-	-	-	4	16	18	72
4	8 – 10	Severe pain	24	96	-	-	-	-	-	-	25	100	25	100	21	84	7	28

Table 4.4 shows that in intervention group,24 (96%) patients had severe pain during pre test, where on the post test day one, 25 (100%) patients had moderate pain. while on day two,19 (76%) patients had mild pain. while on day three, 23 (92%) patient had mild pain and 6 (24%) patients had moderate pain. In comparison group 25 (100%) patients had severe pain during pre test, where on the post test day one, 25 (100%) patients had severe pain. while on day two, 21 (84%) patients had severe pain and 4 (16%) patients had moderate pain. while on day three, 7 (28%) patients had severe pain and 18 (72%) patients had moderate pain. None of them experienced no pain even at the third day in both Intervention group and comparison group.

Section 4.5 Effectiveness of foot and hand massage in reducing post operative pain among abdominal surgery patients in intervention group using paired 't' test

Table 4.5 Comparison of mean and standard deviation of post operative pain between pre test and post test day 1, day 2, day 3 scores among intervention group using paired 't' test:

n=25

S.No	No. of days	Intervention group		Mean	SD	Calculated 't' value	Table value
1	Day 1	Pre test		9.3	0.78	38.9***	3.79
		Posttest I	**M**	5.18	0.79		
			A	3.79	0.90		
			E	3.06	0.64		
2	Day 2	Posttest II	**M**	3.18	0.97	32.2***	3.79
			A	2.32	0.69		
			E	1.36	0.93		
3	Day 3	Posttest III	**M**	2.36	0.95	27.5***	3.79
			A	1.97	0.8		
			E	0.91	0.4		

Note: *** - significant at the level of $p<0.001$.

Table 4.5 describes that in intervention group the calculated 't' value was significant at $p< 0.001$ level. So null hypothesis was rejected and research hypothesis was accepted. This showed there was significant differences between pretest and posttest mean score of post-operative pain among abdominal surgery patients who received foot and hand massage. Hence it is concluded that the foot and hand massage was significantly helps to reduce post-operative pain.

Section 4.6: Effectiveness of foot and hand massage in reducing post-operative pain among abdominal surgery patients in comparison group using paired 't' test

TABLE 4.6: Comparison of mean and standard deviation of post-operative pain between pretest and posttest day 1, day 2, day 3 scores among comparison group using paired "t" test

n=25

S.No	No. of days	Comparison group		Mean	SD	Calculated 't' value	Table value
1	Day 1	Pre test		8.96	0.204	20***	3.79
		Posttest I	**M**	7.96	0.34		
			A	7.48	0.34		
			E	7.32	0.43		
2	Day 2	Posttest II	**M**	8.16	0.14	24.3***	3.79
			A	7.12	0.51		
			E	6.55	0.36		
3	Day 3	Posttest III	**M**	7.70	0.37	30.4***	3.79
			A	6.75	0.46		
			E	6.19	0.48		

Note: *** - significant at the level of $p<0.001$.

Table 4.6 describes that in comparison group the calculated 't' value was significant at $p<0.001$ level. This showed there was significant differences between pretest and posttest mean score of post-operative pain among abdominal surgery patients who received routine care.

TABLE 4.7: Comparison of posttest level of post-operative pain among abdominal surgery patient between intervention group and comparison group using independent 't' test

H_1 – There will be a significant difference in the post test level of post-operative pain among patients with abdominal surgery experimental group and comparison group

n = 50

Post test	Intervention group	Comparison group	Calculated 't' value	Table value
	Mean ± SD	Mean ± SD		
Day 1	4.5 ± 0.53	8.09 ± 0.486	39.04***	3.53
Day 2	3 ± 0.70	7.43 ± 0.288		
Day 3	2.1 ± 0.59	6.91 ± 0.413		
Over all mean and SD	3.2 ± 0.066	7.41 ± 0.395		

Note: *** - significant at the level of p<0.001.

Table 4.7 describes that overall mean value of intervention group is 3.2 which greater than the mean of comparison group. The standard deviation of intervention group is 0.066 and the comparison group the standard deviation is 0.395. The calculated t value is 39.04 which is greater than the table value (3.53). Thus the null hypothesis is rejected.

TABLE 4.8: Association between the pretest levels of post-operative pain selected demographic variables among intervention group of abdominal surgery patient.

H2: There will be a significant association of the level of postoperative pain score of patients who have undergone abdominal surgery in experimental group with selected demographic variable.

n=25

Demographic variables	Intervention group				df	Calculated $\chi 2$ value	Tabulated value
	Moderate		Severe				
	f	%	f	%			
AGE							
20-30 years	-	-	1	4	3	3.311	7.81 (N.S)
31-40 years	1	4	5	20			
41-50 years	-	-	7	28			
51-60 years	-	-	11	44			
61-70 years	-	-	-	-			
GENDER							
Male	-	-	12	48	1	0.958	3.84 (N.S)
Female	1	4	12	48			
EDUCATION							
Primary school	-	-	6	24	4	8.65	9.48 (N.S)
Middle school	1	4	4	16			
High school	-	-	4	16			
Higher secondary	-	-	5	20			
Graduate	-	-	5	20			
OCCUPATION							
House wife	1	4	11	44	3	1.118	7.81 (N.S)
Coolie	-	-	9	36			
Business	-	-	3	12			
Teacher	-	-	1	4			
Driver	-	-	-	-			

Note- NS: Non significant at the level of $p<0.05$

Table 4:8 revealed that there was no significant association between the pretest level of post-operative pain in selected demographic variables like age, gender, education, occupation. Hence the alternative hypothesis was rejected and accepted null hypothesis. Thus age, gender, education. Occupation does not associated with level of post-operative pain among abdominal surgery patients.

TABLE 4.8.1: Association between the pretest levels of post-operative pain selected demographic variables among comparison group of abdominal surgery patient.

H2: There will be a significant association of the level of postoperative pain score of patients who have undergone abdominal surgery in comparison group with selected demographic variable.

n=25

Demographic variables	Comparison group				df	Calculated $\chi 2$ value	Tabulated value
	Moderate		severe				
	f	%	f	%			
AGE							
20-30 years	-	-	4	16	4	0	9.48 (N.S)
31-40 years	-	-	4	16			
41-50 years	-	-	5	20			
51-60 years	-	-	4	16			
61-70 years	-	-	8	32			
GENDER							
Male	-	-	13	52	1	0	3.84 (N.S)
Female	-	-	12	48			
EDUCATION							
Primary school	-	-	7	28	4	0	9.48 (N.S)
Middle school	-	-	5	20			
High school	-	-	5	20			
Higher secondary	-	-	7	28			
Graduate	-	-	1	4			
OCCUPATION							
House wife	-	-	10	40	3	0	7.81 (N.S)
Coolie	-	-	10	40			
Business	-	-	-	-			
Teacher	-	-	1	4			
Driver	-	-	4	16			

Note-NS: Non significant at the level of $p<0.05$

Table 4:8.1 revealed that there was no significant association between the pretest level of post-operative pain in selected demographic variables like age, gender, education, occupation. Hence the alternative hypothesis was rejected and accepted null hypothesis. Thus age, gender, education. Occupation does not associated with level of post-operative pain among abdominal surgery patients.

CHAPTER V

RESULT AND DISCUSSION

This chapter deals with the discussion of the study finding and the results. The discussion brings the right report to closure. This is the most important section of any research report.

Foot and hand massage helps to reduce the post operative pain with abdominal surgery patients. The main objective is to compare the level of post operative pain among patients who have undergone abdominal surgery between before and after administration of foot and hand massage.

5.1 Frequency and percentage distribution of patients according to demographic profile and clinical condition.

Age of the abdominal surgery patients ranged from a minimum of 20 years to a maximum of 70 years. The present study shows that most of the patients in the intervention group 11(44%) patients and comparison group 4 (16%) patients belonged to the age group of 51 - 60 years. This finding was supported by another study which showed that (55%) were in the age group of 30 - 40 years. **(Amal el. shehata, et al., 2016).**

Regarding the sex of the patients was equal percentage of (50%) males and females underwent abdominal surgery. The results are consistent with the result of another study male to female ratio 1:2. **(Amal el. shehata, et al., 2016).**

Regarding educational qualification of the patients, most of the patients in the intervention group 7 (28%) patients and in the comparison group 7 (28%) had completed primary school education. Another study which showed that more than half of the patients (60%) were completed primary school education. **(Amal el. shehata, et al., 2016).**

In this present study majority of patients 9(36%) in the intervention group were diagnosed as inguinal hernia and in the comparison group 11 (44%) of patients were diagnosed as cholecystitis. The present study results are in consistent with the findings of another study showed that among 64 patients, 34 were diagnosed as cholecystitis. **(Amal El. shehata, et al., 2016).**

5.2 Comparison of pre and post test level of post operative pain among intervention group and comparison group based on the numerical pain rating scale

The present study reveals the level of post operative pain among abdominal surgery patients, In the intervention group, 24 (96%) patients had severe pain during pre test, where on the post test day one, 25 (100%) patients had moderate pain. while on day two, 19 (76%) patients had mild pain. while on day three, 23 (92%) patient had mild pain and 2 (8%) patients had moderate pain. In comparison group 25 (100%) patients had severe pain during pre test, where on the post test day one, 25 (100%) patients had severe pain. while on day two, 21 (84%) patients had severe pain and 4 (16%) patients had moderate pain. while on day three, 7 (28%) patients had severe pain and 18 (72%) patients had moderate pain. None of them experienced no pain even at the 3rd day in both intervention group and comparison group. Yet another study on foot and hand massage among 44 patients in intervention group 26 (81.2%) patients had severe pain, and in the comparison group 18 (56.2%) patients had severe pain. Where on the post test in intervention group 26 (81.2%) patients had mild pain and in the comparison group 17 (53.1%) patients had severe pain**. (Chitra joy, et al., 2015)**

5.3 Effectiveness of Foot and Hand Massage in reducing post operative pain among abdominal surgery patients in intervention group using paired 't' test

The present study results show that the mean and standard deviation of the intervention group is 3.2 ± 066. The calculated t value is 39.04 which is greater than the table value (3.53) at the level of $p<0.001$. This showed that foot and hand massage has an effect in reducing level of post operative pain. These finding are supported by the result of another study finding that the mean and standard deviation of the intervention group is 4.96 ± 1.27. The calculated value 3.90 which is greater than the table value 1.67 at the level of $p<0.05$. This showed that foot and hand massage has an effect in reducing post-operative pain. **(Chitra Joy, et al., 2015)**

5.4 Association between the pre test levels of pain with selected demographic variables among intervention group and comparison group of abdominal surgery patient.

The present study results shows that the chi square value was less than the table value for demographic variables age, gender, education, occupation with pre test level of pain among abdominal surgery patients at the level of $p<0.05$.Thus it concludes the demographic variables age, gender, education, occupation does not influence the abdominal surgery

patients. Another study showed that there was no significant association between pre test level of pain with selected demographic variables such as age, gender, education, occupation. **(Chitra Joy, et al., 2015)**

CHAPTER - VI

SUMMARY AND CONCLUSION

Massage is the most widely used complementary therapy in nursing practice. Foot and hand massage has many benefits as it provides tranquility and relaxation, improves circulation. The present study is a study to assess the effectiveness of foot and hand massage in reducing level of post operative pain among patients with abdominal surgery at selected Hospital, Coimbatore. The main objective is to compare the level of postoperative pain among patients who have undergone abdominal surgery between before and after administration of foot and hand massage in experimental group and routine therapy in control group as measured by numerical pain rating scale. The wide literature search also helped in selection of appropriate conceptual planning, developing frame work and research plan.

The research design used in this study was quasi experimental research approach, time series design. The study was conducted in male and female surgical ward, gastroenterology ward of PSG Hospitals, Peelamedu, Coimbatore. The sampling technique used in this study was purposive sampling technique. The sample size was 50, 25 patients belonged to each intervention group and comparison group. According to selection criteria, patients were selected for the study. MC Gill questionnaire and numerical pain rating scale was used to assess the post operative pain among abdominal surgery patients. The data were collected after ethical approval. Pre test level of pain was assessed using numerical pain rating scale and a characteristic of pain was assessed using Mc Gill questionnaire. Foot and hand massage was given to patients who belong to intervention group. Post operative day 1st, 2nd, 3rd the foot and hand massage given for 15 minutes three times a day. Post test was done nine times a day after intervention for three days.

The data was collected through interview and observation for all patients of both intervention and comparison group. Both descriptive and inferential statistics were used for analyses of the data. Student and independent "t" test was used to evaluate the effectiveness of foot and hand massage and routine care. Chi square test was used to find out the association between post operative pain among abdominal surgery patients and their demographic variables.

6.1 Major finding of the study:

- Among 50 patients, most of them (60%) were in the age group of 51 - 60 years this comprised of 11 (44%) patients in intervention group and 4 (16%) patients in comparison group.
- Equal percentage of (50%) males and females underwent abdominal surgery.
- Among 50 patients, 14 patients (28%) had primary school education.
- Among 50 patients, 23 patients (46%) were house wife.
- Among 25 patients in the intervention group, 9 patients (36%) were diagnosed as inguinal hernia and out of 25 patients in comparison group 11 patients (44%) were diagnosed as cholecystitis.
- Among 50 patients, 45 (90%) patients had general anaesthesia and 5 (10%) patients were had spinal anaesthesia.
- Among 25 patients in the intervention group 13 (52%) patients undergone oblique incision and in the comparison group 9 (36%) patients undergone Kocher incision.
- Among 50 patients most of them reported severe cramping pain at surgical site.
- The level of post operative pain among abdominal surgery patients, in the intervention group, 24 (96%) patients had severe pain during pre test, where on the post test day one, 25 (100%) patients had moderate pain. while on day two, 19 (76%) patients had mild pain. while on day three, 23 (92%) patient had mild pain and 2 (8%) patients had moderate pain.
- In comparison group 25 (100%) patients had severe pain during pre test, where on the post test day one, 25 (100%) patients had severe pain. while on day two, 21 (84%) patients had severe pain and 4 (16%) patients had moderate pain. while on day three, 7 (28%) patients had severe pain and 18 (72%) patients had moderate pain.
- Foot and hand massage was effective and complementary in reduction of postoperative pain (3.2 ± 0.066 /$p<0.001$) in the intervention group as compared to the comparison group who received only pain medication (7.41 ± 0.395 / $p<0.001$).
- There was no significant association between the pretest level of postoperative pain in selected demographic variables like age, gender, education, occupation.

6.2 Conclusion:

Foot and Hand massage was an effective, inexpensive assess the level of post operative pain among abdominal surgery patients. The present study was intended to assess the effectiveness of foot and hand massage in reducing level of post operative pain among patients with abdominal surgery at selected Hospital, Coimbatore. The report of this study was found the foot and hand massage was more effective in reducing post operative pain in the intervention group rather than the comparison group among abdominal surgery patients.

6.3 Nursing implications:

The present study has implications for nursing practice, nursing education, nursing administration and nursing research.

6.3.1 Nursing practice:

- Nurses can implement the practice of foot and hand massage in reducing post operative pain among abdominal surgery patients in clinical and community settings.
- Nurses can assess the post operative pain using numerical pain rating scale on daily basis.
- Nurses can involve in educating post operative abdominal surgery patients and their families on the importance of foot and hand massage in reducing post operative pain.

6.3.2 Nursing education:

- Foot and Hand massage can be included in the curriculum on reducing the post operative pain among abdominal surgery patients.
- Continuing education among staff nurses will help to promote and update their knowledge on administration of foot and hand massage for reducing post operative pain among abdominal surgery patients.

6.3.3 Nursing administration:

- Provision should be made for staff working in surgical ward to get training in foot and hand massage.
- Nursing administrators can motivate nurses to use foot and hand massage in their clinical practice for post operative abdominal surgery patients.

6.3.4 Nursing research:

- Randomized clinical trials could be under taken so that the validity of the results can be increased and it can be incorporated into the evidence based nursing practice.

6.4 Recommendation for future study:

- The similar study can be conducted in large group of population
- A study to assess the effectiveness of foot and hand massage in reducing postoperative patients undergoing other than abdominal surgery.

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ANNEXURE I

From

Ms. T.Soniya
M.Sc Nursing I Year
PSG College of Nursing
Peelamedu, Coimbatore - 04

To

Medical Director,
PSG Hospitals
Coimbatore – 4

Through: The Principal, PSG College of Nursing

Respected Sir,

Sub: Seeking permission to carry out the study in Gastrology ward at PSG Hospitals, Coimbatore.

I Ms. T.Soniya , I year M.Sc Nursing student is interested in doing this study. **"A Study to assess the effectiveness of Massage on Foot and Hand in reducing postoperative pain Among Patient With Abdominal Surgery at PSG hospital, Coimbatore'.**

Kindly grant me permission to carry out the study.

Thank you,

Date: 22/1/2016
Place: CBE

Yours sincerely

Soniya.T

Ms. T.Soniya
I year M.Sc Nursing

Signature of the Medical Director:

With Ethics approval only

From

Ms.T. Soniya
M.Sc Nursing I Year
PSG College of Nursing
Peelamedu, Coimbatore - 04

To

HOD of Surgical Department,
PSG Hospitals
Coimbatore – 4

Through: The Principal, PSG College of Nursing

Respected Sir,

Sub: Seeking permission to carry out the study in

Surgical Ward at PSG Hospitals, Coimbatore.

I Ms. T. Soniya , I year M.Sc Nursing student is interested in doing this study. . **"A Study to assess the effectiveness of Massage on Foot and Hand in reducing postoperative pain Among Patient With Abdominal Surgery at PSG hospital, Coimbatore'.** Kindly grant me permission to carry out the study.

Thank you,

Date: 21-7-16
Place: coimbatore

Yours sincerely

Soniya.T

Ms. T. Soniya
I year M.Sc Nursing

Permitted to do the Study in Surgery and post op ward and ICU. (Surg)

Signature of the HOD of Surgery Department.

Dr. S. Premkumar

Dr. S. Premkumar
Professor & HOD
Dept. of General & GI Surgery
PSG IMS&R and PSG Hospitals
Peelamedu, Coimbatore-641 004.

From

Ms.T.Soniya

M.sc Nursing I Year

PSG College of Nursing

Peelamedu,Coimbatore-04

To

Dr.L.Venkatakrishnan

HOD Gastroenterology Department,

PSG Hospitals

Coimbatore-04

Through: The principal, PSG College of Nursing

Respected sir,

Sub: Seeking Permission to carry out the study in

Gastroenterology Ward at PSG Hospitals, Coimbatore

I Ms.T.Soniya, I Year M.sc Nursing student is interested in doing this study."**A Study to assess the effectiveness of Massage on Foot and hand in reducing postoperative pain among patient with abdominal surgery at PSG Hospitals,Coimbatore.**"Kindly grant me permission to carry out the study.

Thank you

Yours sincerely,

Soniya.T

Date: 14/7/16

Place: CBE

Ms.T.Soniya

I Year M.sc Nursing

Signature of the HOD of Gastroenterology Department.

ANNEXURE II

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee
Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

To
Ms T Soniya
I MSc Nursing
Guide: Dr A Tamilselvi / Dr G Malarvizhi
PSG College of Nursing
Coimbatore

Ref: Project No.16/259

Date: September 15, 2016

Dear Ms Sonia,

Institutional Human Ethics Committee, PSG IMS&R reviewed and discussed your application dated 27.07.2016 to conduct the research study entitled "*A study to assess the effectiveness of massage on foot and hand in reducing postoperative pain among patient with abdominal surgery at PSG Hospital, Coimbatore* " during the IHEC meeting held on 29.07.2016.

The following documents were reviewed and approved:

1. Project Submission form
2. Study protocol (Version 1 dated 27.07.2016)
3. Informed consent form – English (Version 3 dated 03.09.2016)
4. Informed consent form – Tamil (Version 2 dated 26.08.2016)
5. Data collection tool (Version 1.1 dated 26.08.2016)
6. Permission letter from concerned Heads of Department
7. Current CVs of Principal investigator, Co-investigators
8. Budget

The following members of the Institutional Human Ethics Committee (IHEC) were present at the meeting held on 29.07.2016 at IHEC Secretariat, PSG IMS & R between 10.00 am and 11.00 am:

Sl. No.	Name of the Member of IHEC	Qualification	Area of Expertise	Gender	Affiliation to the Institution Yes/No	Present at the meeting Yes/No
1	Mr R Nandakumar (Chairperson, IHEC)	BA., BL	Legal Expert	Male	No	Yes
2	Dr. S. Bhuvaneshwari (Member-Secretary, IHEC)	MD	Clinical Pharmacology	Female	Yes	Yes
3	Dr S Shanthakumari	MD	Pathology, Ethicist	Female	Yes	Yes
4	Dr Sudha Ramalingam	MD	Epidemiologist, Ethicist Alt. member-Secretary	Female	Yes	Yes
5	Dr D Vijaya	M Sc., Ph D	Basic Medical Sciences (Biochemistry)	Female	Yes	Yes

The study is approved in its presented form. The decision was arrived at through consensus. Neither PI nor any of proposed study team members were present during the decision making of the IHEC. The IHEC functions in accordance with the ICH-GCP/ICMR/Schedule Y guidelines. The approval is valid until one year from the date of sanction. You may make a written request for renewal / extension of the validity, along with the submission of status report as decided by the IHEC.

PSG Institute of Medical Sciences & Research
Institutional Human Ethics Committee

Recognized by The Strategic Initiative for Developing Capacity in Ethical Review (SIDCER)
POST BOX NO. 1674, PEELAMEDU, COIMBATORE 641 004, TAMIL NADU, INDIA
Phone : 91 422 - 2598822, 2570170, Fax : 91 422 - 2594400, Email : ihec@psgimsr.ac.in

Following points must be noted:

1. IHEC should be informed of the date of initiation of the study
2. Status report of the study should be submitted to the IHEC every 12 months
3. PI and other investigators should co-operate fully with IHEC, who will monitor the trial from time to time
4. At the time of PI's retirement/intention to leave the institute, study responsibility should be transferred to a colleague after obtaining clearance from HOD, Status report, including accounts details should be submitted to IHEC and extramural sponsors
5. In case of any new information or any SAE, which could affect any study, must be informed to IHEC and sponsors. The PI should report SAEs occurred for IHEC approved studies within 7 days of the occurrence of the SAE. If the SAE is 'Death', the IHEC Secretariat will receive the SAE reporting form within 24 hours of the occurrence
6. In the event of any protocol amendments, IHEC must be informed and the amendments should be highlighted in clear terms as follows:
   a. The exact alteration/amendment should be specified and indicated where the amendment occurred in the original project. (Page no. Clause no. etc.)
   b. Alteration in the budgetary status should be clearly indicated and the revised budget form should be submitted
   c. If the amendments require a change in the consent form, the copy of revised Consent Form should be submitted to Ethics Committee for approval
   d. If the amendment demands a re-look at the toxicity or side effects to patients, the same should be documented
   e. If there are any amendments in the trial design, these must be incorporated in the protocol, and other study documents. These revised documents should be submitted for approval of the IHEC and only then can they be implemented
   f. Any deviation-Violation/waiver in the protocol must be informed to the IHEC within the stipulated period for review
7. Final report along with summary of findings and presentations/publications if any on closure of the study should be submitted to IHEC

Kindly note this approval is subject to ratification in the forthcoming full board review meeting of the IHEC.

Thanking You,

Yours Sincerely,

15.9.16

SECRETARY
PSG IMS&R
COIMBATORE-641004.
INSTITUTIONAL HUMAN ETHICS COMMITTEE

Dr S Bhuvaneshwari
Member - Secretary
Institutional Human Ethics Committee

ANNEXURE III

PSG Institute of Medical Science and Research, Coimbatore
Institutional Human Ethics Committee
INFORMED CONSENT FORMAT FOR RESEARCH PROJECTS

(Strike off items that are not applicable)

I Ms.T.Soniya carrying out a study on the topic: "**A Study to assess the effectiveness of Foot and Hand massage in reducing level of postoperative pain Among Patient With Abdominal Surgery at selected hospital, Coimbatore.**

As part of my / our research project being carried out under the aegis of the Department of: Medical surgical nursing

(*Applicable to students only*): My research guide is: Dr.A.Tamilselvi

The justification for this study is: The availability of analgesic drugs and pain relieving techniques, pain remains a common problem and a significant fear for the patient during the postoperative period.

The objectives of this study are:

- ✓ To compare the level of postoperative pain among patients who have undergone abdominal surgery before and after administration of hand and foot massage (experimental group) as measured by numerical rating scale.
- ✓ To compare the level of postoperative pain among patients who have undergone abdominal surgery after routine therapy (control group) as measured by numerical rating scale.
- ✓ To compare the posttest level of pain among patients in abdominal surgery between experimental group and control group.
- ✓ To find out the association of pretest level of pain among patients in experimental group and control group with selected demographic variables

Sample size:

Purposive sampling technique

Estimated sample size is 50

Study volunteers / participants are (specify population group & age group): Abdominal surgery patient

Location: PSG Hospitals, Gastroenterology ward, postoperative ward, surgical ward

I request you to kindly cooperate with me in this study. I propose to collect background information and other relevant details related to this study. I will be carrying out:

Initial interview (specify approximate duration): 30 minutes.

Data collected will be stored for a period of3years. I will / will not use the data as part of another study.

Clinical examination (Specify details and purpose): Mc Gill Pain Questionnaire find out the Type of pain, Numerical pain rating scale used to assess the intensity of pain.

Benefits from this study: Foot and Hand Massage will reduce the postoperative pain Among Abdominal surgery patients.

Risks involved by participating in this study: Nil

How the **results** will be used: 1.To Perform Evidence Based Practice .2.Submission in the thesis.3. To publish in the journals and conference presentation

If you are uncomfortable in answering any of our questions during the course of the interview / biological sample collection, **you have the right to withdraw from the interview / study at anytime.** You have the freedom to withdraw from the study at any point of time. Kindly be assured that your refusal to participate or withdrawal at any stage, if you so decide, will not result in any form of compromise or discrimination in the services offered nor would it attract any penalty. You will continue to have access to the regular services offered to a patient. You will **NOT** be paid any remuneration for the time you spend with us for this interview / study. The information provided by you will be kept in strict confidence. Under no circumstances shall we reveal the identity of the respondent or their families to anyone. The information that we collect shall be used for approved research purposes only. You will be informed about any significant new findings - including adverse events, if any, – whether directly related to you or to other participants of this study, developed during the course of this research which may relate to your willingness to continue participation.

Consent: The above information regarding the study, has been read by me/ read to me, and has been explained to me by the investigator/s. Having understood the same, I hereby give my consent to them to interview me. I am affixing my signature / left thumb impression to indicate my consent and willingness to participate in this study (i.e., willingly abide by the project requirements).

Signature / Left thumb impression of the Study Volunteer / Legal Representative:

Signature of the Interviewer with date: Witness:

Contact number of PI: 9677536341

Contact number of Ethics Committee Office: 0422 2570170 Extn.: 5818

பூ சா கோ மருத்துவக் கல்லூரி மற்றும் ஆராய்ச்சி நிறுவனம். கோவை

மனித நெறிமுறைக் குழு

ஒப்புதல் படிவம்

தேதி:

தா. சோனியா ஆகிய நான் பூ சா கோ மருத்துவக்கல்லூரியின்/மருத்துவமனையின் இரைப்பை குடலியல் மருத்துவதுறையின் கீழ் வயிற்று அறுவை சிகிச்சை முடிந்தவர்களுக்கு கை மற்றும் கால்களை பிடித்து விடுதல் திறனுள்ளதா என்ற தலைப்பில் ஆய்வு மேற்கொள்ள உள்ளேன்.

என் ஆய்வு வழிகாட்டி : திருமதி . முனைவர். A. தமிழ்செல்வி

ஆய்வு மேற்கொள்வதன் அடிப்படை :பொதுவாக அறுவை சிகிச்சைக்கு பிறகு ஏற்படும் வலியானது நோயாளிகளிடம் மிகுந்த தாக்கத்தை ஏற்படுத்தி வருகிறது. இதனால் அறுவை சிகிச்சைக்கு பின்பு ஏற்படும் வலியை குறைபதற்கு உண்டான மாற்று சிகிச்சையின் அவசியமும் அதிகரித்து வருகிறது .

ஆய்வின் நோக்கம் :

1. கை மற்றும் கால்களை பிடித்து விடுவதற்கு முன்பும், பின்பும் உள்ள வலியின் அளவை ஒப்பிடுதல்.
2. ஆய்விற்கு உட்ப்படும் குழுவினருக்கும் ஆய்விற்கு உட்படாத குழுவினருக்கும் இடையில் உள்ள வலியின் அளவை ஒப்பிடுதல்.

ஆய்வில் பங்கு பெறும் நபர்களின் எண்ணிக்கை : ஆராய்ச்சி குழுவினரின் எண்ணிக்கை-15, கட்டுப்பாட்டு குழுவினரின் எண்ணிக்கை-15

ஆய்வில் பங்கு பெறுவோர் மற்றும் வயது : வயிற்று அறுவை சிகிச்சை நோயாளிகள். 20 வயதிற்கு மேல் உள்ளவர்கள்.

ஆய்வு செய்யப்படும் முறை :

1. கேள்வி கேட்டல் / வினா வினவுதல் (அடிப்படை தகவல்கள் குறித்து).
2. கை மற்றும் கால்களை பிடித்து விடுவதன் மூலம் அறுவை சிகிச்சைக்கு பின்பு ஏற்டும் வலியின் தன்மையை குறைத்தல்.

ஆய்வு மேற்கொள்ளும் இடம் :பூ சா கோ மருத்துவமனை.

இந்த ஆய்வில் எங்களுடன் ஒத்துழைக்குமாறு கேட்டுகொள்கிறோம். நாங்கள் சில தகவல்களை இந்த ஆய்விற்காக சேகரிக்க உள்ளோம். இந்த ஆய்வில் கிடைக்கும் தகவல்கள் 3 வருடங்கள் பாதுகாக்கப்படும். இந்த தகவல்கள் வேறு ஆய்விற்கு பயன்படுத்தப்படமாட்டாது.

ஆய்வில் பங்கு பெறுவதால் எற்படும் பலன்கள்: கை மற்றும் கால்களை பிடித்து விடுவதன் மூலம் அறுவை சிகிச்சைக்கு பின்பு ஏற்படும் வலியை குறைத்தல்.

ஆய்வில் பங்கு பெறுவதால் எற்படும் அசௌகரியங்கள் / பக்கவிளைவுகள் : ஏதுமில்லை.

ஆய்வின் முடிவுகள் எந்த முறையில் பயன்படுதப்படும் ?

1. முதுகலைப்பட்டதிற்காக பல்கலைக்கழகத்திற்கு அனுப்பப்படும்.
2. செவிலியர் துறை சார்ந்த இதழ்களில் பிரசுரிக்கப்படும்.

3. ஆதாரப்பூர்வமான பயிற்சிக்கு அடித்தளமிடும்.

இந்த ஆய்வின் கேள்விகளுக்கு பதிலளிப்பதிலோ, இரத்தமாதிரிகள் அல்லது திசுமாதிரிகள் எடுப்பதிலோ உங்களுக்கு ஏதெனும் அசௌகரியங்கள் இருந்தால், எந்த நேரம் வேண்டுமானாலும் ஆய்விலிருந்து விலகிக் கொள்ளும் உரிமை உங்களுக்கு உண்டு. ஆய்விலிருந்து விலகிக் கொள்வதால் உங்களுக்கு அளிக்கப்படும் சிகிச்சை முறையில் எந்தவித பாதிப்பும் இருக்காது என்று உங்களுக்கு உறுதியளிக்கிறோம். மருத்துவமனையில் நோயாளிகளுக்கு அளிக்கப்படும் சேவைகளை நீங்கள் தொடர்ந்து பெறலாம். இந்த ஆய்வில் பங்கேற்க ஒப்புக்கொள்வதால் வேறு எந்தவிதமான கூடுதல் பலனும் உங்களுக்கு கிடைக்காது. நீங்கள் அளிக்கப்படும் தகவல்கள் இரகசியமாக வைக்கப்படும்.ஆய்வில் பங்கேற்பவர்கள் பற்றியோ அவர்கள் குடும்பத்தை பற்றியோ எந்தத் தகவலும் எக்காரணம் கொண்டும் வெளியிடப்படாது என்று உறுதியளிக்கிறோம்.நீங்கள் அளிக்கப்படும் தகவல்கள்/இரத்தமாதிரிகள் அல்லது திசு மாதிரிகள் அங்கீகரிக்கப்பட்ட ஆய்விற்கு மட்டுமே பயன்படுத்தப்படும். இந்த ஆய்வு நடைபெறும் காலத்தில் குறிப்பிடத்தகுந்த புதிய கண்டுபிடிப்புகள் அல்லது பக்கவிளைவுகள் ஏதும் ஏற்பட்டால் உங்களுக்கு தெரிவிக்கப்படும். இதனால் ஆய்வில் தொடர்ந்து பங்கு பெறுவது பற்றிய உங்கள் நிலைப்பாட்டை நீங்கள் தெரிவிக்க ஏதுவாகும்.

ஆய்விற்குட்பட்டவரின்ஒப்புதல்: இந்த ஆய்வை பற்றிய மேற்கூறிய தகவல்களை நான் படித்து அறிந்து கொண்டேன் / ஆய்வாளர் படிக்க கேட்டு தெரிந்து கொண்டேன். ஆய்வினைப்பற்றி நன்றாகப் புரிந்து கொண்டு இந்த ஆய்வில் பங்கு பெற ஒப்புக்கொள்கிறேன். இந்த ஆய்வில் பங்கேற்பதற்கான எனது ஒப்புதலை கீழே கையொப்பமிட்டு / கைரேகை பதித்து தெரிவித்துக்கொள்கிறேன்.

பங்கேற்பாளரின் பெயர், முகவரி :

பங்கேற்பாளரின் கையொப்பம் / கைரேகை / சட்டபூர்வ பிரதி நிதியின் கையொப்பம் :

தேதி:

ஆய்வாளரின் கையொப்பம் :

தேதி:

ஆய்வாளரின் தொலைபேசி எண்: 9677536341

மனித நெறிமுறைக் குழு அலுவலகத்தின் தொலைபேசி எண்:

0422 2570710 extn: 5818.

ANNEXURE IV

SECTION A

DEMOGRAPHIC DATA:

1) Sample number:
2) Age in years:
3) Sex

Male ( )
Female ( )

4) Education status

a) Primary school (1-5) ( )
b) Middle school (6-8) ( )
c) High school (9-10) ( )
d) Higher secondary (11-12) ( )
e) Graduate ( )

5) Occupation:

SECTION B: SURGICAL DETAILS

a) Diagnosis:

b) Date of admission:

c) Name of the surgery:

d) Date of surgery:

e) Post operative day:

f) Type of anaesthesia used?

a. Spinal anaesthesia ☐
b. General anaesthesia ☐

g) Type of incision:

a) Midline incision ☐
b) Para median incision ☐
c) Kocher's incision ☐
d) Mc Burney's incision ☐
e) Oblique incision ☐

f) others- (specify):

6) Analgesics prescribed:

Analgesics	**Post operative period**			
	Day 0	**Day I**	**Day II**	**Day III**
Name				
Dose				
Route				
Frequency				

SECTIONC

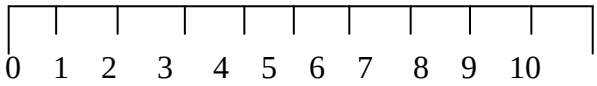
I. Short Form Mc Gill Pain Questionnaire

Instructions: Please read the following and place a (∨) mark against the appropriate space.

	None	**Mild**	**Moderate**	**Severe**
Throbbing				
Shooting				
Stabbing				
Sharp				
Cramping				
Gnawing				
Hot burning				
Aching				
Heavy				
Tender				
Splitting				
Tiring				
Sickening				
Fearful				

2. Numerical pain rating scale:

Instructions: Please put a circle on this number where the intensity of the pain you suffer.



No pain pain as worse it

Numerical rating scale:

No pain	- 0
Mild pain	- 1-3
Moderate pain	- 4-7
Severe pain	- 8- 10

ANNEXURE V

INTERVENTION

A STUDY TO ASSESS THE EFFECTIVENESS OF FOOT AND HAND MASSAGE IN REDUCING LEVEL OF POSTOPERATIVE PAIN AMONG PATIENTS WITH ABDOMINAL SURGERY AT SELECTED HOSPITAL, COIMBATORE.

A brief introduction on foot and hand massage will be given to the participants and relatives with adequate positive reinforcement. Massage therapy is the training helps to reduce the postoperative pain among abdominal surgery patients. Massage therapy should be done for 15 minutes for each extremities.

Steps of foot and hand massage:

Foot massage

1. Foot of the patient placed in convenient position.
2. Stood at the right side to the patient.
3. Applied 5 ml of coconut oil on feet. Gentle foot massage was given in left foot.
4. Spread oil on the feet and leg and rub the oil from the heels to sole and toes.
5. Stood in front to the patient.
6. Hold the heel in one hand and start rotating the ankle in a gentle motion, four times left and four times right. Use the thumb and start to massage the top of the feet in a circular movement from toes to ankle.
7. Hold the foot firmly, gently pull and rotate each toe three times right and three times left.
8. Again massage the back of the toes and ball of the foot in a circular movement.
9. Then finish the massage with gentle strokes along the feet and leg with finger tips.
10. The step 1-9 was repeated for right leg.
11. Foot massage was given on each leg for 15 minutes and continue to right foot.
12. Foot massage given at morning, afternoon, evening after 4 hours of medication.

Hand massage:

1. Hand of the patient placed in convenient position.
2. Stood at the right side to the patient.
3. Applied 5 ml of coconut oil. Gentle massage given left hand.
4. Face the palm down. Press with the thumbs and make little circles around the wrist bone.
5. Turn the wrist over and stroke the inside of the wrist with thumbs.
6. Press firmly and stroke toward the palms and back to the wrist.
7. Stroke should move towards the knuckles and then back towards the wrist.
8. Then massage of the each fingers.
9. Stroke the palm with firm, even motions that move away from the wrist. Then massage the center of the palm using circular motion and continue to the right hand.
10. The steps 1-9 was repeated for right hand.
11. Hand massage given at morning, afternoon, evening after 4 hours of medication.

ANNEXURE-VI

MASTER CODING SHEET

Demographic data and Surgical details											Chi square table sheet				
3	**1**	**4**	**2**	**4**	**3**	**2**	**5**	**1**	**2**		3	1	4	2	2
1	2	5	1	2	2	2	5	1	2		2	2	5	1	2
4	1	1	2	4	3	2	5	1	2		4	1	1	2	2
2	2	3	1	1	1	2	3	1	2		2	2	3	1	2
4	1	1	2	4	3	2	5	1	2		4	1	1	2	2
4	2	5	1	1	1	2	3	1	2		4	2	5	1	2
2	2	2	1	1	1	2	3	1	1		2	2	2	1	1
4	2	1	1	3	3	1	5	1	2		4	2	1	1	2
3	1	1	2	4	3	2	5	1	2		3	1	1	2	2
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3	2	4	1	2	2	2	4	1	2		3	2	4	1	2
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1	2	4	1	2	2	2	4	1	1		1	2	4	1	2
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2	1	3	5	2	2	1	1	1	2		2	1	3	5	2
5	1	1	2	3	3	2	5	1	2		5	1	1	2	2
1	2	4	1	2	2	2	4	1	2		1	2	4	1	2
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5	2	3	1	1	1	2	3	1	2		5	2	3	1	2
5	1	2	2	4	3	2	5	1	2		5	1	2	2	2
3	1	1	5	1	1	2	3	1	2		3	1	1	5	2
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1	2	5	4	2	2	2	4	1	2		1	2	5	3	2
2	2	4	1	1	1	2	3	1	2		2	2	4	1	2